

=> d his full

(FILE 'HOME' ENTERED AT 15:36:19 ON 24 JUN 2005)

FILE 'HCAPLUS' ENTERED AT 15:36:33 ON 24 JUN 2005  
 L1 1 SEA ABB=ON PLU=ON (US20040087785 OR US6812358 OR US2003000433  
 3)/PN OR US2001-296999#/AP,PRN

FILE 'REGISTRY' ENTERED AT 15:38:13 ON 24 JUN 2005

FILE 'HCAPLUS' ENTERED AT 15:38:16 ON 24 JUN 2005  
 L2 TRA L1 1- RN : 29 TERMS

FILE 'REGISTRY' ENTERED AT 15:38:16 ON 24 JUN 2005  
 L3 29 SEA ABB=ON PLU=ON L2

FILE 'WPIX' ENTERED AT 15:38:19 ON 24 JUN 2005  
 L4 1 SEA ABB=ON PLU=ON (US20040087785 OR US6812358 OR US2003000433  
 3)/PN OR US2001-296999#/AP,PRN

=> b hcap

FILE 'HCAPLUS' ENTERED AT 15:38:40 ON 24 JUN 2005  
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FILE COVERS 1907 - 24 Jun 2005 VOL 143 ISS 1  
 FILE LAST UPDATED: 23 Jun 2005 (20050623/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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L1	ANSWER 1 OF 1 HCAPLUS	COPYRIGHT 2005 ACS on STN			
AN	2002:964483	HCAPLUS			
DN	138:24878				
ED	Entered STN:	20 Dec 2002			
TI	Process for preparing estra-4,9(10)-diene-3,17-dione steroids from 19-nor-androst-4-ene-3-one steroids				
IN	Van Rheenen, Verlan H.; Hessler, Edward J.				
PA	Bridge Organics Co., USA				
SO	PCT Int. Appl., 23 pp.				
	CODEN: PIXXD2				
DT	Patent				
LA	English				
IC	ICM C12N				
CC	32-3 (Steroids)				
FAN.CNT 1					
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002101014	A2	20021219	WO 2002-US18305	20020607 <-
	WO 2002101014	A3	20040325		

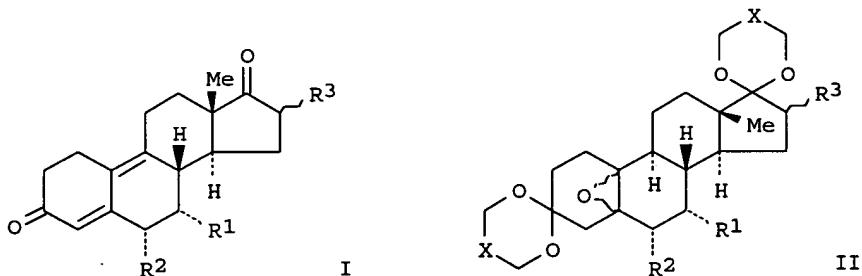
WO 2002101014	B1	20040506	
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RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG		
US 2003004333	A1	20030102	US 2002-163727
US 6812358	B2	20041102	
US 2004087785	A1	20040506	US 2003-695122
PRAI US 2001-296999P	P	20010608	<--
US 2002-163727	A	20020606	

**CLASS**

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002101014	ICM	C12N
WO 2002101014	ECLA	C07J001/00C2; C07J071/00B1
US 2003004333	NCL	552/623.000; 540/543.000
	ECLA	C07J001/00C2; C07J071/00B1
US 2004087785	NCL	540/008.000; 540/076.000
	ECLA	C07J001/00C2; C07J071/00B1

OS CASREACT 138:24878; MARPAT 138:24878

GI



**AB** The present invention discloses a novel process for preparing estra-4,9(10)-diene-3,17-dione derivs. such as I [R1 = Me, H, CO<sub>2</sub>Me; R2 = Me, F, H; R3 = Me, OH, F, H], from readily available 19-nor-androst-4-ene-3-one derivs. such as II [X = bond, C(Me)<sub>2</sub>, CH<sub>2</sub>], by a three-step process. Thus, epoxidn. of 7 $\alpha$ -methyl-estra-5(10)-ene-3,17-dione-3,17-bis-ethylene glycol ketal afforded 7 $\alpha$ -methyl-estra-5(10)-oxido-3,17-dione-3,17-bis-ethylene glycol ketal which upon treatment with hydrochloric acid provided 10-hydroxy-7 $\alpha$ -methyl-estra-4-ene-3,17-dione (III) and 5,10-dihydroxy-7 $\alpha$ -methyl-estra-4-ene-3,17-dione (IV). III and IV were reacted with concentrated sulfuric acid to afford estra-4,9(10)-diene-3,17-dione I [R1 = Me; R2, R3 = H]. Products of this process are important intermediates in the preparation of biol. active substances.

**ST** estradienedione steroid prep norandrosteneone epoxidn; oxidoestradiol dihydroxyestraenedione hydroxyestraenedione prep

**IT** Ketals

RL: RCT (Reactant); RACT (Reactant or reagent)  
(estra-5(10)-ene-3,17-dione-3,17-bis-ketal derivative; in preparation of estra-4,9(10)-diene steroid derivs.)

**IT** Acids, reactions

RL: RGT (Reagent); RACT (Reactant or reagent)  
(inorg.; in preparation of estra-4,9(10)-diene steroids from 10-hydroxy-estra-4-ene-3,17-dione and 5,10-dihydroxy-estra-4-ene-3,17-

dione steroids)

IT Epoxidation  
 (of estra-5(10)-ene-3,17-dione-3,17-bis-glycol ketal in preparation of  
 estra-5(10)-oxido-3,17-dione-3,17-bis-glycol ketal)

IT Estrogens  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
 (Preparation)  
 (preparation of estra-4,9(10)-diene steroids from 19-nor-androst-4-ene-3-one  
 steroids)

IT 19-Norsteroids  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of estra-4,9(10)-diene steroids from 19-nor-androst-4-ene-3-one  
 steroids)

IT 13209-45-5P, Estra-4,6-diene-3,17-dione 478156-84-2P 478156-85-3P  
 478156-86-4P 478156-87-5P 478156-88-6P 478156-89-7P 478156-91-1P  
 478156-93-3P 478156-94-4P 478156-96-6P 478242-79-4P  
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic  
 preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of estra-4,9(10)-diene steroids from 19-nor-androst-4-ene-3-one  
 steroids)

IT 5173-46-6P, Estra-4,9-diene-3,17-dione 24130-12-9P 30164-84-2P  
 478156-90-0P 478156-92-2P 478156-97-7P  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
 (Preparation)  
 (preparation of estra-4,9(10)-diene steroids from 19-nor-androst-4-ene-3-one  
 steroids)

IT 734-32-7, 19-Nor-androst-4-ene-3,17-dione 2220-74-8 2503-06-2,  
 Estra-5(10),9(11)-diene-3,17-dione 17000-78-1 33585-96-5 139444-50-1  
 478156-95-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of estra-4,9(10)-diene steroids from 19-nor-androst-4-ene-3-one  
 steroids)

IT 79-21-0, Peracetic acid 937-14-4, m-Chloroperbenzoic acid 7664-38-2,  
 Phosphoric acid, reactions 7664-93-9, Sulfuric acid, reactions  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (preparation of estra-4,9(10)-diene steroids from 19-nor-androst-4-ene-3-one  
 steroids)

=> b reg

FILE 'REGISTRY' ENTERED AT 15:38:47 ON 24 JUN 2005  
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Property values tagged with IC are from the ZIC/VINITI data file  
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STRUCTURE FILE UPDATES: 23 JUN 2005 HIGHEST RN 852898-09-0  
 DICTIONARY FILE UPDATES: 23 JUN 2005 HIGHEST RN 852898-09-0

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TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

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 \*  
 \* The CA roles and document type information have been removed from \*
 \* the IDE default display format and the ED field has been added, \*
 \* effective March 20, 2005. A new display format, IDERL, is now \*
 \* available and contains the CA role and document type information. \*
 \*

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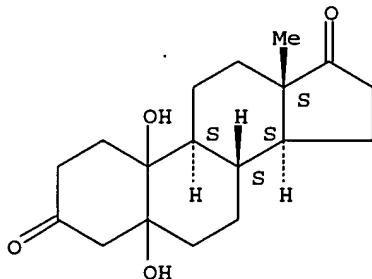
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:  
<http://www.cas.org/ONLINE/DBSS/registryss.html>

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L3 ANSWER 1 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478242-79-4 REGISTRY  
ED Entered STN: 07 Jan 2003  
CN Estrane-3,17-dione, 5,10-dihydroxy-, (10 $\xi$ )- (9CI) (CA INDEX NAME)  
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MF C18 H26 O4  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

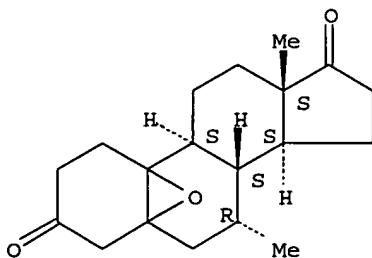


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 2 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-97-7 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estrane-3,17-dione, 5,10-epoxy-7-methyl-, (7 $\alpha$ ,10 $\xi$ )- (9CI) (CA INDEX NAME)  
FS STEREOSEARCH  
MF C19 H26 O3  
SR CA  
LC STN Files: CA, CAPLUS, USPAT2, USPATFULL

Absolute stereochemistry.

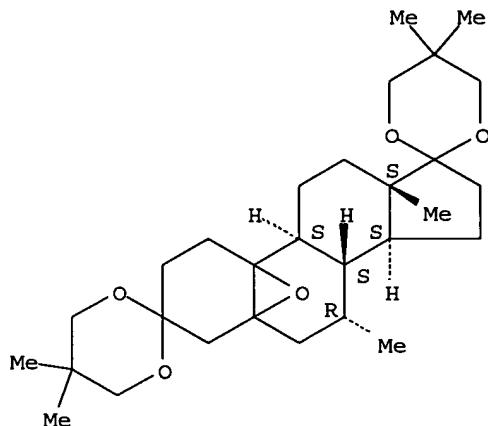


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 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 3 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 478156-96-6 REGISTRY  
 ED Entered STN: 06 Jan 2003  
 CN Estrane-3,17-dione, 5,10-epoxy-7-methyl-, cyclic bis(2,2-dimethyl-1,3-propanediyl acetal), (7 $\alpha$ ,10 $\xi$ )- (9CI) (CA INDEX NAME)  
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 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

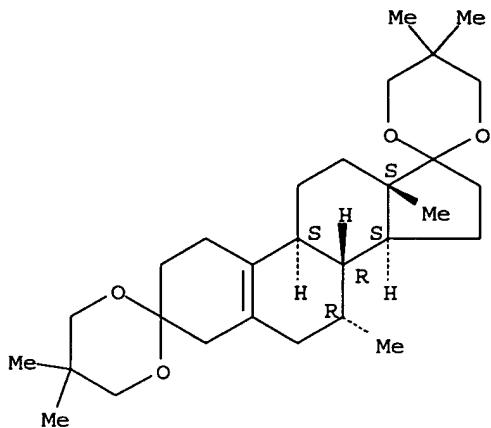


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 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 4 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 478156-95-5 REGISTRY  
 ED Entered STN: 06 Jan 2003  
 CN Estr-5(10)-ene-3,17-dione, 7-methyl-, cyclic bis(2,2-dimethyl-1,3-propanediyl acetal), (7 $\alpha$ )- (9CI) (CA INDEX NAME)  
 FS STEREOSEARCH  
 MF C29 H46 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

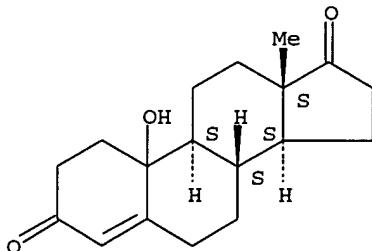


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 5 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-94-4 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estr-4-ene-3,17-dione, 10-hydroxy-, (10β)- (9CI) (CA INDEX NAME)  
FS STEREOSEARCH  
MF C18 H24 O3  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

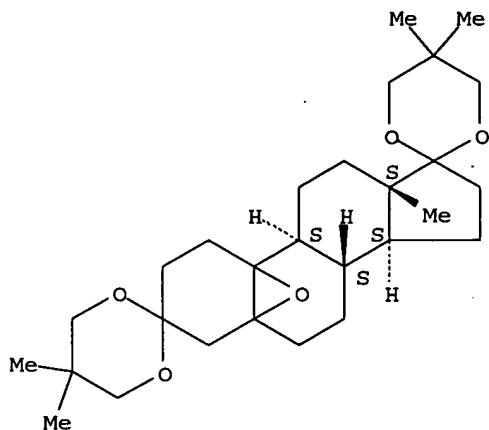


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L3 ANSWER 6 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-93-3 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estrane-3,17-dione, 5,10-epoxy-, cyclic bis(2,2-dimethyl-1,3-propanediyl acetal), (10β)- (9CI) (CA INDEX NAME)  
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MF C28 H44 O5  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

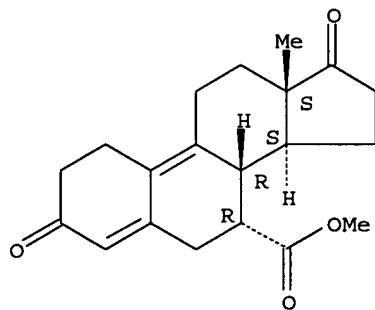


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 7 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 478156-92-2 REGISTRY  
 ED Entered STN: 06 Jan 2003  
 CN Estra-4,9-diene-7-carboxylic acid, 3,17-dioxo-, methyl ester, (7 $\alpha$ )- (9CI) (CA INDEX NAME)  
 FS STEREOSEARCH  
 MF C20 H24 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.



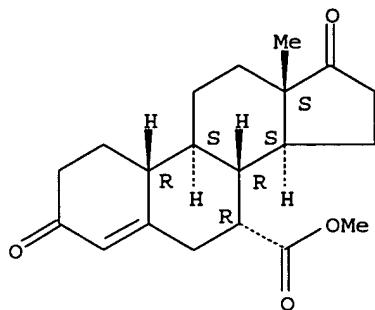
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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 8 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 478156-91-1 REGISTRY  
 ED Entered STN: 06 Jan 2003  
 CN Estr-4-ene-7-carboxylic acid, 3,17-dioxo-, methyl ester, (7 $\alpha$ )- (9CI) (CA INDEX NAME)  
 FS STEREOSEARCH  
 MF C20 H26 O4  
 SR CA

LC STN Files: CA, CAPLUS, USPAT2, USPATFULL

Absolute stereochemistry.

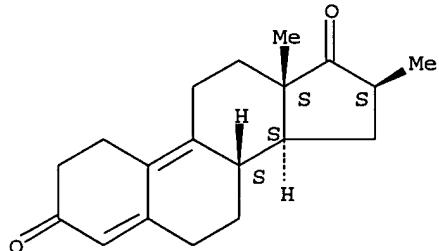


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L3 ANSWER 9 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-90-0 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estra-4,9-diene-3,17-dione, 16-methyl-, (16β)- (9CI) (CA INDEX NAME)  
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MF C19 H24 O2  
SR CA  
LC STN Files: CA, CAPLUS, USPAT2, USPATFULL

Absolute stereochemistry.

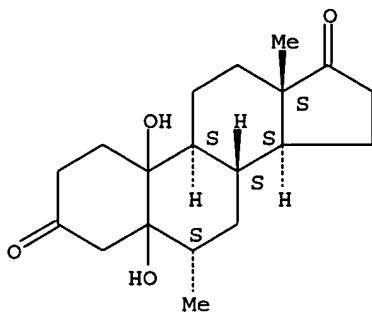


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 10 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-89-7 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estrane-3,17-dione, 5,10-dihydroxy-6-methyl-, (6α,10ξ)- (9CI) (CA INDEX NAME)  
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MF C19 H28 O4  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

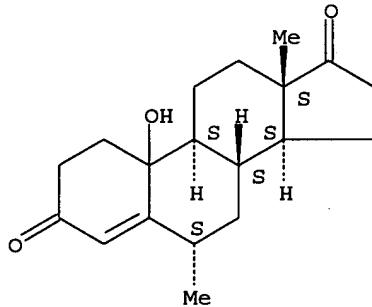


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 11 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-88-6 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estr-4-ene-3,17-dione, 10-hydroxy-6-methyl-, (6 $\alpha$ ,10 $\beta$ )- (9CI) (CA INDEX NAME)  
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MF C19 H26 O3  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

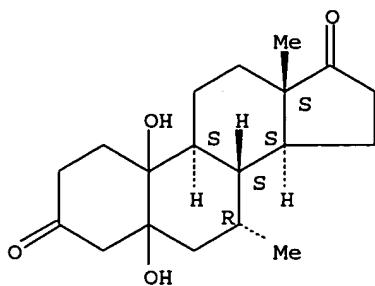


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 12 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-87-5 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estrane-3,17-dione, 5,10-dihydroxy-7-methyl-, (7 $\alpha$ ,10 $\beta$ )- (9CI) (CA INDEX NAME)  
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MF C19 H28 O4  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

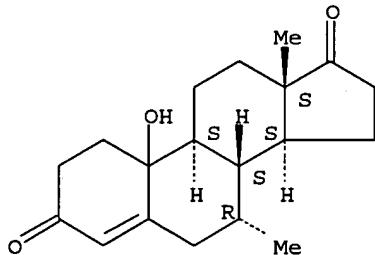


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 13 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-86-4 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estr-4-ene-3,17-dione, 10-hydroxy-7-methyl-, (7 $\alpha$ ,10 $\beta$ )- (9CI) (CA INDEX NAME)  
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Absolute stereochemistry.

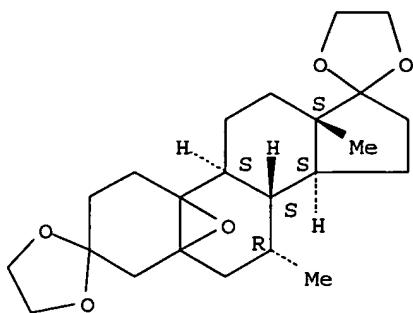


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 14 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-85-3 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estrane-3,17-dione, 5,10-epoxy-7-methyl-, cyclic bis(1,2-ethanediyl acetal), (7 $\alpha$ ,10 $\beta$ )- (9CI) (CA INDEX NAME)  
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MF C23 H34 O5  
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LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

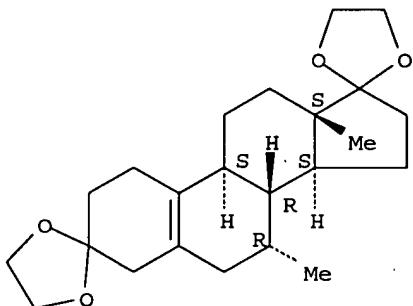


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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 15 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 478156-84-2 REGISTRY  
ED Entered STN: 06 Jan 2003  
CN Estr-5(10)-ene-3,17-dione, 7-methyl-, cyclic bis(1,2-ethanediyl acetal),  
(7 $\alpha$ )- (9CI) (CA INDEX NAME)  
FS STEREOSEARCH  
MF C23 H34 O4  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

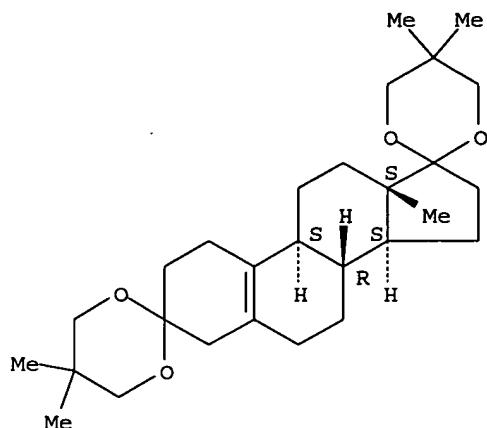


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1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 16 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 139444-50-1 REGISTRY  
ED Entered STN: 06 Mar 1992  
CN Estr-5(10)-ene-3,17-dione, cyclic bis(2,2-dimethyl-1,3-propanediyl acetal)  
(9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Dispiro[1,3-dioxane-2,3'-[3H]cyclopenta[a]phenanthrene-17'(2'H),2''-[1,3]dioxane], estr-5(10)-ene-3,17-dione deriv.  
FS STEREOSEARCH  
MF C28 H44 O4  
SR CA  
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

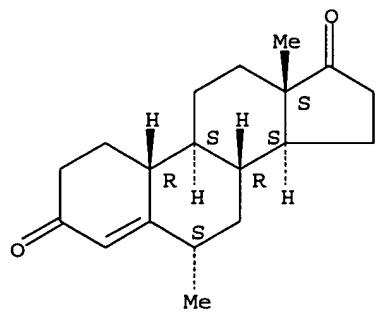


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)  
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 17 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 33585-96-5 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estr-4-ene-3,17-dione, 6-methyl-, (6 $\alpha$ )- (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Estr-4-ene-3,17-dione, 6 $\alpha$ -methyl- (6CI, 8CI)  
 OTHER NAMES:  
 CN NSC 29186  
 FS STEREOSEARCH  
 MF C19 H26 O2  
 LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, IFICDB, IFIPAT,  
 IFIUDB, USPAT2, USPATFULL  
 (\*File contains numerically searchable property data)

Absolute stereochemistry.

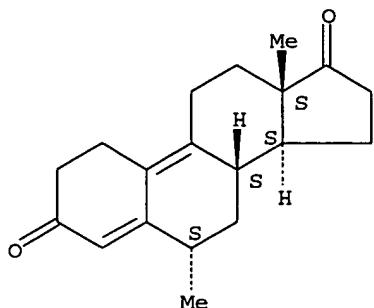


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

4 REFERENCES IN FILE CA (1907 TO DATE)  
 4 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 18 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 30164-84-2 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estra-4,9-diene-3,17-dione, 6-methyl-, (6 $\alpha$ )- (9CI) (CA INDEX NAME)  
 FS STEREOSEARCH  
 MF C19 H24 O2  
 LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Absolute stereochemistry.

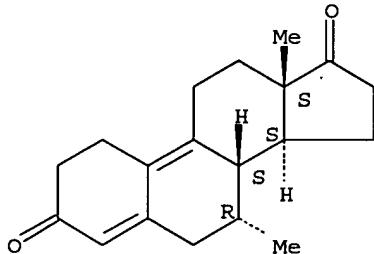


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 19 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 24130-12-9 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estra-4,9-diene-3,17-dione, 7-methyl-, (7 $\alpha$ )- (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Estra-4,9-diene-3,17-dione, 7 $\alpha$ -methyl- (8CI)  
 FS STEREOSEARCH  
 MF C19 H24 O2  
 LC STN Files: BEILSTEIN\*, CA, CAPLUS, CASREACT, IFICDB, IFIPAT, IFIUDB,  
 TOXCENTER, USPAT2, USPATFULL  
 (\*File contains numerically searchable property data)

Absolute stereochemistry. Rotation (-).



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

5 REFERENCES IN FILE CA (1907 TO DATE)  
 5 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 20 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 17000-78-1 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estr-4-ene-3,17-dione, 7-methyl-, (7 $\alpha$ )- (9CI) (CA INDEX NAME)

## OTHER CA INDEX NAMES:

CN Estr-4-ene-3,17-dione, 7 $\alpha$ -methyl- (7CI, 8CI)

## OTHER NAMES:

CN 7 $\alpha$ -Methylestr-4-ene-3,17-dione

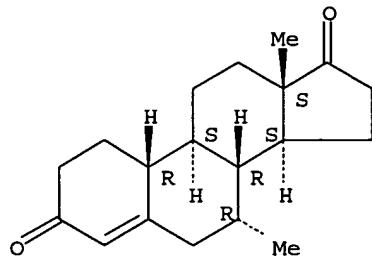
CN SR 16278

FS STEREOSEARCH

MF C19 H26 O2

LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, IFICDB, IFIPAT, IFIUDB, TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)

Absolute stereochemistry.



## \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

15 REFERENCES IN FILE CA (1907 TO DATE)

15 REFERENCES IN FILE CAPLUS (1907 TO DATE)

2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 21 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN

RN 13209-45-5 REGISTRY

ED Entered STN: 16 Nov 1984

CN Estra-4,6-diene-3,17-dione (7CI, 8CI, 9CI) (CA INDEX NAME)

## OTHER NAMES:

CN 19-Norandrosta-4,6-diene-3,17-dione

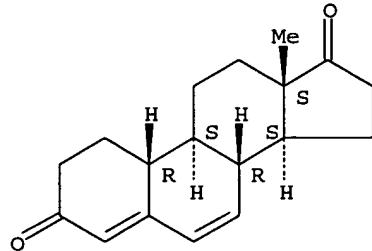
CN 4,6-Estradien-3,17-dione

FS STEREOSEARCH

MF C18 H22 O2

LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, CSCHEM, IFICDB, IFIPAT, IFIUDB, MEDLINE, TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)

Absolute stereochemistry.



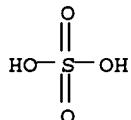
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33 REFERENCES IN FILE CA (1907 TO DATE)

33 REFERENCES IN FILE CAPLUS (1907 TO DATE)

3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 22 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 7664-93-9 REGISTRY  
ED Entered STN: 16 Nov 1984  
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN BOV  
CN Brimstone acid  
CN Contact acid  
CN Dihydrogen sulfate  
CN Dipping acid  
CN NSC 248648  
CN NSC 38965  
CN Oil of vitriol  
CN Ridolene 123  
CN Sulphuric acid  
CN Vitriol brown oil  
FS 3D CONCORD  
DR 127529-01-5, 119540-51-1, 140623-70-7  
MF H<sub>2</sub> O<sub>4</sub> S  
CI COM  
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOPHARMA, BIOSIS, BIOTECHNO,  
CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,  
CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM\*,  
DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,  
GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS,  
NIOSHTIC, PDLCOM\*, PIRA, PROMT, RTECS\*, SPECINFO, TOXCENTER, TULSA,  
ULIDAT, USAN, USPAT2, USPATFULL, VTB  
(\*File contains numerically searchable property data)  
Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)

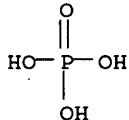


## \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

97729 REFERENCES IN FILE CA (1907 TO DATE)  
4991 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
97787 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 23 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 7664-38-2 REGISTRY  
ED Entered STN: 16 Nov 1984  
CN Phosphoric acid (7CI, 8CI, 9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN 3M Etching Liquid  
CN Amberphos 54  
CN C 134  
CN C 134 (acid)  
CN C 434  
CN C 434 (acid)  
CN Conditioner 36  
CN Decon 4512  
CN E 338  
CN Etchalite  
CN EVITS  
CN HQ 54  
CN K-etchant  
CN Kefo

CN Kerr Etchant  
 CN Mikro Klene DF  
 CN NSC 80804  
 CN Orthophosphoric acid  
 CN Panavia Etching Agent  
 CN Sonac  
 CN SPA 2  
 CN SPA 2 (catalyst)  
 CN TG 434  
 CN Total Etch  
 CN Ultra-Etch Gel  
 CN Ultraetch  
 CN Uni-Etch  
 CN WC-Reiniger  
 FS 3D CONCORD  
 DR 28602-75-7, 178560-73-1  
 MF H3 O4 P  
 CI COM  
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO,  
     CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,  
     CHEMINFORMRX, CHEMLIST, CIN, CSHEM, CSNB, DDFU, DETHERM\*, DIOGENES,  
     DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,  
     GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS,  
     NAPRALERT, NIOSHTIC, PDLCOM\*, PIRA, PROMT, RTECS\*, SPECINFO, TOXCENTER,  
     TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB  
     (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
     (\*\*Enter CHEMLIST File for up-to-date regulatory information)

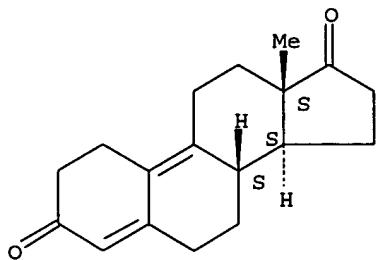


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

62407 REFERENCES IN FILE CA (1907 TO DATE)  
 8918 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 62459 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 24 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 5173-46-6 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estra-4,9-diene-3,17-dione (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)  
 OTHER NAMES:  
 CN 19-Norandrosta-4,9-diene-3,17-dione  
 FS STEREOSEARCH  
 MF C18 H22 O2  
 LC STN Files: BEILSTEIN\*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS,  
     IFICDB, IFIPAT, IFIUDB, PS, USPAT2, USPATFULL  
     (\*File contains numerically searchable property data)

Absolute stereochemistry. Rotation (-).

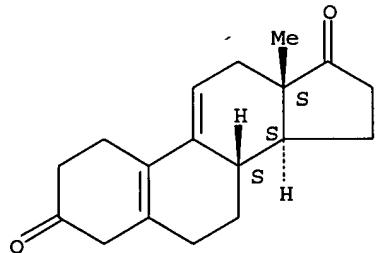


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

72 REFERENCES IN FILE CA (1907 TO DATE)  
 72 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 12 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 25 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 2503-06-2 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estra-5(10),9(11)-diene-3,17-dione (7CI, 8CI, 9CI) (CA INDEX NAME)  
 FS STEREOSEARCH  
 MF C18 H22 O2  
 LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, IFICDB, IFIPAT,  
     IFIUDB, USPAT2, USPATFULL  
     (\*File contains numerically searchable property data)

Absolute stereochemistry.

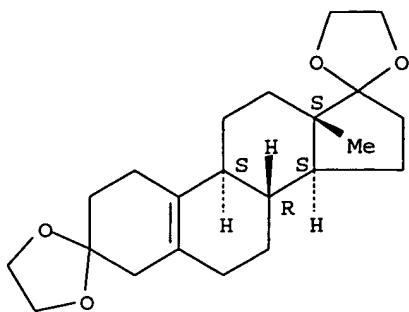


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

16 REFERENCES IN FILE CA (1907 TO DATE)  
 16 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 26 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 2220-74-8 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estr-5(10)-ene-3,17-dione, cyclic bis(1,2-ethanediyl acetal) (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Dispiro[1,3-dioxolane-2,3'-[3H]cyclopenta[a]phenanthrene-17'(2'H),2''-[1,3]dioxolane], estr-5(10)-ene-3,17-dione deriv.  
 CN Estr-5(10)-ene-3,17-dione, cyclic bis(ethylene acetal) (7CI, 8CI)  
 FS STEREOSEARCH  
 MF C22 H32 O4  
 LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, TOXCENTER, USPAT2,  
     USPATFULL  
     (\*File contains numerically searchable property data)

Absolute stereochemistry.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

7 REFERENCES IN FILE CA (1907 TO DATE)  
 7 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 27 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN

RN 937-14-4 REGISTRY

ED Entered STN: 16 Nov 1984

CN Benzenecarboperoxoic acid, 3-chloro- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Peroxybenzoic acid, m-chloro- (7CI, 8CI)

OTHER NAMES:

CN 3-Chlorobenzenecarboperoxoic acid

CN 3-Chloroperbenzoic acid

CN 3-Chloroperoxybenzoic acid

CN m-Chlorobenzoyl hydroperoxide

CN m-Chloroperbenzoic acid

CN m-Chloroperoxobenzoic acid

CN m-Chloroperoxybenzoic acid

CN m-Chloroperoxybenzoic acid

CN MCPBA

CN NSC 97094

FS 3D CONCORD

MF C7 H5 Cl O3

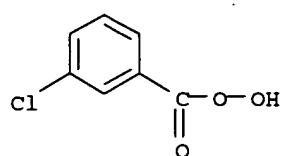
CI COM

LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN\*, BIOBUSINESS, BIOSIS,  
 BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,  
 CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, EMBASE, GMELIN\*, HODOC\*, IFICDB,  
 IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, NIOSHTIC, PS, RTECS\*, SYNTHLINE,  
 TOXCENTER, USPAT2, USPATFULL

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

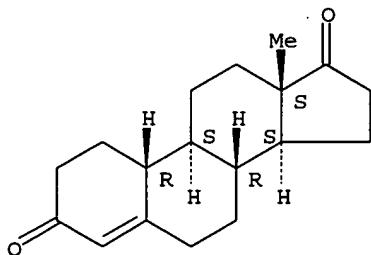


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2121 REFERENCES IN FILE CA (1907 TO DATE)  
 43 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 2128 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 19 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 28 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 734-32-7 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Estr-4-ene-3,17-dione (6CI, 8CI, 9CI) (CA INDEX NAME)  
 OTHER NAMES:  
 CN (+)-19-Norandrost-4-en-3,17-dione  
 CN (+)-19-Norandrost-4-ene-3,17-dione  
 CN (+)-Estr-4-ene-3,17-dione  
 CN Δ<sup>4</sup>-Estrene-3,17-dione  
 CN 19-Nor-4-androstenedione  
 CN 19-Norandrost-4-ene-3,17-dione  
 CN 3,17-Dioxo-19-norandrost-4-ene  
 CN d-19-Norandrost-4-ene-3,17-dione  
 CN NSC 12164  
 FS STEREOSEARCH  
 DR 15324-53-5, 30598-83-5  
 MF C18 H24 O2  
 LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN\*, BIOBUSINESS, BIOSIS,  
 BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CHEMCATS,  
 CHEMINFORMRX, CHEMLIST, CSCHEM, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA,  
 MEDLINE, PS, SPECINFO, TOXCENTER, USPAT2, USPATFULL  
 (\*File contains numerically searchable property data)  
 Other Sources: EINECS\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.

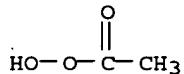


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

410 REFERENCES IN FILE CA (1907 TO DATE)  
 4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 411 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 32 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 29 OF 29 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 79-21-0 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Ethaneperoxoic acid (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Peroxyacetic acid (8CI)  
 OTHER NAMES:  
 CN Acetic peroxide  
 CN Acetyl hydroperoxide  
 CN Desoxon 1  
 CN Estosteril  
 CN Hydroperoxide, acetyl

CN LCAP  
 CN Monoperacetic acid  
 CN Osbon AC  
 CN Oxigreen 010  
 CN Oxypel  
 CN Ozonit  
 CN Peracetic acid  
 CN Perethanoic acid  
 CN Peroxoacetic acid  
 CN Proxitane 12A  
 CN Proxitane 15  
 CN Proxitane 1507  
 CN Proxitane 4002  
 CN Proxitane S  
 CN Tsunami  
 CN Tsunami 100  
 FS 3D CONCORD  
 DR 89370-71-8, 232259-02-8  
 MF C2 H4 O3  
 CI COM  
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOBUSINESS, BIOSIS,  
     BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,  
     CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM\*,  
     DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,  
     GMELIN\*, HODOC\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*,  
     MSDS-OHS, NIOSHTIC, PDLCOM\*, PIRA, PROMT, PS, RTECS\*, SYNTHLINE,  
     TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB  
     (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
     (\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

3979 REFERENCES IN FILE CA (1907 TO DATE)  
 62 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 3985 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 6 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> b wpix

FILE 'WPIX' ENTERED AT 15:38:56 ON 24 JUN 2005  
 COPYRIGHT (C) 2005 THE THOMSON CORPORATION

FILE LAST UPDATED: 21 JUN 2005 <20050621/UP>  
 MOST RECENT DERWENT UPDATE: 200539 <200539/DW>  
 DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,  
     PLEASE VISIT:  
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 >>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE  
<http://thomsonderwent.com/coverage/latestupdates/> <<<  
 >>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER  
     GUIDES, PLEASE VISIT:  
<http://thomsonderwent.com/support/userguides/> <<<

>>> NEW! FAST-ALERTING ACCESS TO NEWLY-PUBLISHED PATENT DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX FIRST VIEW - FILE WPIFV.  
FOR FURTHER DETAILS: [<<<](http://www.thomsonderwent.com/dwpifv)

>>> THE CPI AND EPI MANUAL CODES HAVE BEEN REVISED FROM UPDATE 200501.  
PLEASE CHECK:

<http://thomsonderwent.com/support/dwpiref/reftools/classification/code-revision/>  
FOR DETAILS. <<<

=> d all 14 tot

L4 ANSWER 1 OF 1 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN  
 AN 2003-278225 [27] WPIX  
 DNC C2003-072590  
 TI Preparation of steroid with 4,9(10)-diene-3-one, or its derivative, comprising contacting 10-hydroxy-4-ene-3-ketosteroids and 5,10-dihydroxy-3-ketosteroids with concentrated or moderate sulfuric acid.  
 DC B01  
 IN HESSLER, E J; RHEENEN, V H V; VAN RHEENEN, V H  
 PA (HESS-I) HESSLER E J; (RHEE-I) RHEENEN V H V; (VRHE-I) VAN RHEENEN V H;  
 (BRID-N) BRIDGE ORGANICS CO  
 CYC 100  
 PI WO 2002101014 A2 20021219 (200327)\* EN 12 C12N000-00  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZM ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT  
 RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW  
 US 2003004333 A1 20030102 (200327) C07J071-00 <--  
 US 2004087785 A1 20040506 (200430) C07J021-00 <--  
 AU 2002316205 A1 20021223 (200452) C12N000-00  
 US 6812358 B2 20041102 (200472) C07J001-00 <--  
 ADT WO 2002101014 A2 WO 2002-US18305 20020607; US 2003004333 A1  
 Provisional US 2001-296999P 20010608, US 2002-163727 20020606; US  
 2004087785 A1 Provisional US 2001-296999P 20010608, Div ex US  
 2002-163727 20020606, US 2003-695122 20031028; AU 2002316205 A1 AU  
 2002-316205 20020607; US 6812358 B2 Provisional US 2001-296999P  
 20010608, US 2002-163727 20020606  
 FDT AU 2002316205 A1 Based on WO 2002101014  
 PRAI US 2002-163727 20020606; US 2001-296999P  
 20010608; US 2003-695122 20031028  
 IC ICM C07J001-00; C07J021-00; C07J071-00; C12N000-00  
 ICS A61K031-56; A61K031-58; C07D223-14; C07J053-00  
 AB WO2002101014 A UPAB: 20030429  
 NOVELTY - Preparation (P1) of steroid (I) with 4,9(10)-diene-3-one, or its derivative, comprises contacting 10-hydroxy-4-ene-3-ketosteroids and/or 5,10-dihydroxy-3-ketosteroids with concentrated or moderated sulfuric acid (up to 5 volume%) (containing mixture of concentrated sulfuric acid (30 volume%) and water).  
 DETAILED DESCRIPTION - Preparation (P1) of steroid of formula (I) with 4,9(10)-diene-3-one, or its derivative, comprising contacting 10-hydroxy-4-ene-3-ketosteroids of formula (II) and/or 5,10-dihydroxy-3-ketosteroids of formula (III) with concentrated or moderated sulfuric acid (up to 5 volume%) (containing mixture of concentrated sulfuric acid (30 volume%) and water).  
 R1 = CH<sub>3</sub>, H or COOCH<sub>3</sub>; and  
 R2 = CH<sub>3</sub>, F or H.  
 INDEPENDENT CLAIMS are also included for the following:  
 (1) compounds of formulae (V), (VI), (VII) and (VIII); and  
 (2) preparation (P2) of steroidal estra-4,9(10)-diene-3,17-diones of formula (IA), comprising either:  
 (a) (i) contacting estra-5(10)-ene-3,17-bis-ketal of formula (IB) with an epoxidizing agent, (ii) contacting the epoxide product with dilute

acid, and (iii) contacting the obtained product with concentrated or moderated sulfuric acid; or

(b) treating steroidal ester-5(10),9(11)-diene-3,17-diones of formula (IX) with concentrated mineral acid.

R<sub>3</sub> = CH<sub>3</sub>, OH, F or H; and

X = C, C(CH<sub>3</sub>)<sub>2</sub> or CH<sub>2</sub>.

USE - For the preparation of a steroid having 4,9(10)-diene-3-one, or its derivative (claimed), as intermediates in the preparation of biologically active substance.

Dwg.0/0

FS CPI

FA AB; GI; DCN

MC CPI: B01-C09; B01-D02

=> b home

FILE 'HOME' ENTERED AT 15:39:01 ON 24 JUN 2005

=>